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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ROBERT C. LAM, FENG DONG,
and YIH FANG CHEN

Appeal 2009-003554
Application 10/678,599
Technology Center 1700

Decided: February 25, 2010

Before BRADLEY R. GARRIS, PETER F. KRATZ, and
MARK NAGUMO, *Administrative Patent Judges*.

GARRIS, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134 from the Examiner's decision rejecting claims 1, 2, 4, and 6-19. We have jurisdiction under 35 U.S.C. § 6.

We AFFIRM.

Appellants claim a friction material comprising a fibrous base material and a secondary layer comprising a mixture of friction modifying particles which comprise about 20% to about 35% by weight of silica particles and about 65% to about 80% carbon particles based on the total weight of the friction modifying particles (claim 1).

Representative claim 1, the sole independent claim on appeal, reads as follows:

1. A friction material comprising a fibrous base material impregnated with at least one curable resin, the fibrous base material comprising high fiber content porous primary layer and a secondary layer comprising a mixture of carbon and silica friction modifying particles on at least one surface of the primary layer; the secondary layer comprises about 20% to about 35%, by weight, of silica particles, and about 65% to about 80% carbon particles, based on the total weight of the friction modifying particles.

The references relied upon by the Examiner as evidence of obviousness are:

Lam (Lam '307)	5,998,307	Dec. 07, 1999
Chen (EP '897)	EP 1203897 A1	May 08, 2002

Under 35 U.S.C. § 103(a), the Examiner rejects all claims as being unpatentable over EP '897 and as being unpatentable over Lam '307 in view of EP '897.

Appellants' arguments against these rejections are directed solely to the claim 1 limitation

a secondary layer comprising a mixture of carbon and silica friction modifying particles on at least one surface of the primary layer; the secondary layer comprises about 20% to about 35%, by weight, of silica particles, and about 65% to about 80% carbon particles, based on the total weight of the friction modifying particles

(Br. 3-15). Therefore, our disposition of this appeal will be based on this claim 1 limitation, and dependent claims 2, 4, and 6-19 will stand or fall with independent claim 1.

The § 103 Rejection Based on EP ‘897

The Examiner finds that EP ‘897 discloses a friction material comprising a secondary layer of friction modifying particles which include, *inter alia*, silica particles, carbon particles, and mixtures thereof (Ans. para. bridging 3-4). The Examiner acknowledges that EP ‘897 does not teach a mixture of friction modifying particles comprising 20-35% silica and 65-80% carbon as required by claim 1 (*id.*). Nevertheless, the Examiner concludes that it would have been obvious for one with ordinary skill in this art to use a mixture of silica and carbon friction modifying particles and to determine appropriate percentage ranges for these particles through routine experimentation in order to obtain optimum friction properties (*id.*).

Appellants argue that “[t]he ‘897 EP patent does not teach or suggest that the secondary layer can comprise a mixture of silica and carbon friction modifying particles in the specific range set forth in the claims on Appeal” (Br. para. bridging 8-9). Appellants further argue that “[t]o just state that the specific limitations recited in the claims is [sic, are] obvious and that these limitations could be selected through the process of routine experimentation is not proper without at least some support in the applied reference” (*id.* at para. bridging 9-10).

These arguments are unpersuasive.

Appellants do not dispute the Examiner’s above-noted finding that EP ‘897 discloses a secondary layer of various friction modifying particles

which include silica particles and carbon particles as well as mixtures thereof. This disclosure would have suggested a mixture of silica particles and carbon particles since this is one of the several combinations of particles encompassed by the EP '897 disclosure. *See Merck & Co., Inc. v. Biocraft Laboratories, Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989) ("That the '813 patent discloses a multitude of effective combinations does not render any particular formulation less obvious. This is especially true because the claimed composition is used for the identical purpose taught by the prior art.").

Additionally, an artisan would have found it obvious to develop workable or even optimum percentage ranges for the silica and carbon particles since these percentages are parameters which effect the friction modifying result achieved with such particles. Contrary to Appellants' apparent belief, this obviousness conclusion is supported by the fact that EP '897 leaves determining effective percentages of the friction modifying particles to those with ordinary skill in this art. Generally speaking, it is well settled that an artisan would have found it obvious to develop workable or optimum ranges for result-effective parameters such as the percentages of friction modifying particles under consideration. *See In re Woodruff*, 919 F.2d 1575, 1578 (Fed. Cir. 1990) and *In re Boesch*, 617 F.2d 272, 276 (CCPA 1980).

For the above-stated reasons, Appellants' arguments fail to reveal error in the Examiner's § 103 rejection of all appealed claims as being unpatentable over '897.

The § 103 Rejection Based on Lam '307 in view of EP '897

The Examiner acknowledges that Lam '307 discloses a secondary layer of carbon friction modifying particles rather than a mixture of 20-35% silica particles and 65-80% carbon particles as required by claim 1 (Ans. para. bridging 4-5). However, based on the Examiner's previously described findings regarding EP '897, the Examiner concludes that it would have been obvious for one with ordinary skill in this art to provide Lam's secondary layer as a mixture of silica and carbon particles and to determine appropriate percentages for these particles through the process of routine experimentation in order to obtain optimum friction properties (*id.*).

Appellants argue that “[t]he '307 patent and the '897 EP patent do not disclose or suggest a friction material having a secondary layer with carbon and silica friction modifying particles in the specific ranges set forth in the claims on Appeal” (Br. 13). Appellants also argue that “there is no disclosure or suggestion in either of the two references relied upon by the Examiner for the specific ranges of carbon and silica friction modifying particles as set forth in the claims on Appeal” (*id.* at para. bridging 13-14).

These arguments correspond to those made against the § 103 rejection based on EP '897 and are unpersuasive for the reasons discussed above with respect to that rejection. It follows that Appellants' arguments fail to reveal error in the Examiner's § 103 rejection of all appealed claims as being unpatentable over Lam '307 in view of EP '897.

Conclusion

In light of the foregoing, we sustain the § 103 rejections of all appealed claims over EP '897 and over Lam '307 in view of EP '897.

The decision of the Examiner is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a) (2008).

AFFIRMED

ssl

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